

The influence of melting, ...

S/148/61/000/006/002/013
E193/E480



heats, a technology of melting chromium-aluminium steels was developed, the main points of which are as follows:

- 1) A short (not exceeding 1 hour) but intensive oxidizing period (rate of decarburization above 0.6% C/hr, at a concentration of carbon $[\Delta C] = 0.50$ to 0.60%). The metal temperature at the end of boiling should be within a range 1600 to 1630°C.
- 2) After drawing off the oxidizing slag, 1 kg/t of lump 45% ferrosilicon and 1 kg/t of lump silicocalcium is charged on to the clear surface of the metal and a fresh slag is made which is deoxidized with coke mixed with lime and powdered 75% ferrosilicon. Before alloying with aluminium, the metal should be well deoxidized and contain above 0.15% of silicon. The content of ferrous oxide in the slag before aluminium addition should not exceed 1.0%. The duration of refining is 1 hr 20 min to 1 hr 40 min.
- 3) The metal should be retained for not less than 11 to 12 minutes (vacuum treatment of the metal in the ladle is not a necessity). From 1960, this technique has been used for melting 35KhYuA and 38KhVFYuA steels in the works (not specified). A comparison of the proportion of rods affected by spot segregation made from the metal produced by the old and new technique is given: steels

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35KhYuA old technology 12.1%, new technology 0.6 and 0.47%.
It is pointed out that additions of silicocalcium in lumps have a particularly beneficial effect in decreasing rejects due to spot segregation. Moreover, the metal becomes less anisotropic (the ratio of impact strength of transverse and longitudinal specimens increased from 0.50 - 0.63 to 0.81 - 0.89). V.P. Frantsov, R.Ye. Danichek, N.A. Karpov, T.M. Vorob'yeva, Yu.G. Volovich and Sung Cheng Kuang participated in the work. There are 6 figures, 8 tables and 14 Soviet references.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut
(Dnepropetrovsk Metallurgical Institute)

SUBMITTED: November 15, 1960

Card 5/5

S/148/61/000/011/006/018

E071/E180

AUTHOR: Chuyko, N.M.

TITLE: On the theory of the acid electro steel making

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Chernaya metallurgiya, no.11, 1961, 76-85

TEXT: Acid electro steel making was little studied, particularly in respect of the influence of the lime and alumina content of slag on the distribution of oxygen, manganese and silicon between the metal and the slag. To facilitate calculations, the author showed on the basis of the molecular theory of slags that, with increasing concentration of calcium oxide, the sum of iron and manganese oxide concentrations in the slag decreases linearly according to an equation:

$$Z = \sum (\text{FeO} + \text{MnO}) = 48 - 1.43\% (\text{CaO})$$

or for industrial slags:

$$Z = \sum (\text{FeO} + \text{MnO}) = 51 - 1.43\% (\sum \text{RO}),$$

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On the theory of the acid

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where $(\sum RO) = \%(CaO) + \frac{56}{40} \% (MgO) + \frac{56}{102} \% (Al_2O_3)$ (15)

Using this equation, the equilibrium distribution of oxygen, manganese and silicon between metal and slag saturated with silica can be calculated. It was shown that, in order to obtain metal with a low oxygen content, the lime content of slag should be increased to 20-25%. It was also demonstrated that when operating with slag saturated with silica, carbon acts as a strong deoxidising agent $[Si] = K_{Si-C} [C]^2$;

$\lg [Si] = - \frac{3200}{t} - 17.62 + 2 \lg [C]$,

particularly at high temperatures (above 1650 °C) and high concentrations ($[C] > 0.4\%$). V.B. Rutkovskiy (Aspirant) participated in the work. A.D. Kramarov, S.Ya. Reznikova, I.A. Popov and B.V. Stark are mentioned in the article. There are 8 figures, 2 tables and 6 references: 4 Soviet-bloc and 2 German.

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On the theory of the acid

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E071/E180

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut
(Dnepropetrovsk Metallurgical Institute)

SUBMITTED: April 21, 1961

Card 3/3

S/148/61/000/012/002/009
E071/E335

AUTHOR: Chuyko, N.M.

TITLE: On the main trends of development of quality metallurgy
in the USSR during the next few years

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya
metallurgiya, no. 12, 1961, 50 - 53

TEXT: Use of low-alloy steels, smelted in electric furnaces, will reduce greatly the consumption of metal, improve the service life and lower the manufacturing costs of machinery and equipment. At the All-Union Conference of Steel Smelters, held in August, 1960, in Donetsk, it was recommended that in the building of new melting shops priority should be given to the basic converter process with application of oxygen, electrosmelting and, in large (100-300-ton) arc furnaces, treatment of the metal with electric furnace and synthetic slags in the ladle. During the next 15 to 20 years the proportion of steel produced in electric furnaces should increase by a factor of 2-3 compared with 1959 (for which year the figures were: open-hearth steel 51.1 million tons - 85.3%).

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On the main trends

electric steel 5.2 million tons - 8.6%; converter steel 3.7 million tons - 6.1%). In view of the decreasing proportion of scrap available, most of the participants in the above mentioned conference (A.M. Samarin, A.F. Myrtsyomov, A.G. Afanas'yev et al) advocated that greater use be made of electric furnaces operating with a liquid semi-finished product, paying particular attention to the duplex process. Top-blown converters can produce a semi-product (N below 0.004%, H₂ below 3 ml./100 g, P 0.015%, S below 0.035%), which can be processed in an arc furnace without the oxidizing period. The process will be reduced to the formation of basic deoxidized slag (3-5% of the metal), alloying of the metal and finishing it to the required chemical composition and temperature. The tapping of the metal should be combined with its treatment with an electrically smelted fluid slag of the following composition: CaO > 53%, MgO ≤ 12%, Σ (CaO + MgO) = 62-65%, Σ (SiO₂ + Al₂O₃) = 30-33%, CaF₂ = 2 - 3%, FeC ≤ 0.4%. With this technology the duration of a heat will be about 1.5 - 2 hours. whereupon the refining of the metal will take 1.0-1.5 hours.

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On the main trends

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E071/E355

The productivity of electric furnaces will increase by a factor exceeding four. Power consumption will decrease from 600 - 650 kWh/ton to 100 - 150 kWh/ton. In the opinion of the author, large melting shops of a capacity of 2 to 4 million tons, operating with a duplex process, should be erected for the production of quality steels. They should be equipped with 100-ton electric furnaces fitted with electromagnetic stirring and 100-ton basic top oxygen-blown converters. The electric furnaces and converters should be so placed that they could operate in pairs and separately. The shops should be also equipped with electric furnaces for melting synthetic slags. Under these conditions the main part of the metal in the form of a semi-product will go into the electric furnaces and the remaining metal will be treated with molten synthetic slags. This will enable the production of a wide range of alloy, low-alloy and carbon quality steels. In order to utilise process scrap, electric melting shops operating with cold charge should also be erected. Only in this way can the production of quality metal in the USSR be rapidly increased.

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On the main trends

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E071/E335

There are 3 tables and 7 Soviet-bloc references.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut
(Dnepropetrovsk Metallurgical Institute)

SUBMITTED: November 10, 1960

Card 4/4

PEREVYAZKO, A.T.; CHUYKO, N.M., Prinimali uchastiye: FRANTSOV, V.P.;
DANICHEK, R.Ye.; KARPOV, N.A.; VOROB'YEVA, T.M.; VOLOVICH, Yu.G.;
SUN CHEN GUAN

Effect of the technology of smelting, vacuum treatment, and pouring
of chromium-aluminum steel on the presence of spotty segregation.
Izv.vys.ucheb.zav.; chern.met. 4 no.6:42-52 '61. (MIRA 14:6)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Steel-aluminum alloys--Metallography)
(Vacuum metallurgy)

CHUYKO, N.M.

Basic trends in the expansion of grade steel metallurgy in the
U.S.S.R., in the near future. Izv. vys. ucheb. zav.; chern. met.
4 no.12:50-53 '61. (MIRA 15:1)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Steel--Electrometallurgy)

PEREVIAZKO, A.T., inzh; CHUYKO, N.M., prof.

Effect of the composition of chromium-aluminum steels on the extent of their spotty segregation [with summary in English].

Stal' 21 no.3:267-271 Mr '61.

(MIRA 14:6)

1. Dnepropetrovskiy metallurgicheskiy institut.

(Chromium steel--Metallography)

(Steel-aluminum alloys--Metallography)

S/133/62/000/009/003/009
A054/A127

AUTHORS: Chuyko, N.M., Doctor of Technical Sciences, Rutkovskiy, V.B., Danichek, R.Ye., Perevyazko, A.T., Borodulin, G.M., Tregubenko, A.F., Shamil', Yu.P., Frantsov, V.P., Volovich, V.G., - Engineers

TITLE: Blowing inert gases through the metal in the ladle under vacuum

PERIODICAL: Stal', no. 9, 1962, 809 - 811

TEXT: Vacuum treatment of liquid steel promotes the removal of gases and reduces the amount of nonmetallic inclusions. Tests were carried out (in cooperation with I.M. Ioffe, M.I. Lavrent'yev, G.P. Parkhomenko, V.I. Demidenko, Ye.M. Rysin, and T.M. Vorob'yeva, Engineers) to determine the optimum methods of blowing inert gases through the liquid metal in the ladle in combination with the vacuum treatment. The method established does not require special refractory materials, the apparatus used (designed by N.M. Chuyko, Professor and Ye.I. Lavreyev, Engineer) is of a simple design and metal losses through the spout can be prevented. The argon feed can be controlled very closely by means of 3 rotameters [PC-7 (RS-7) type], having 30 standard m³/h capacity and supplied with

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Blowing inert gases through the metal in

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needle valves. The test steel [ШХ15 (ШХ15)] was smelted in four versions:
 I. blowing through the reduced metal in the ladle under atmospheric pressure;
 II. the same, under vacuum; III. vacuum treatment of non-reduced metal, containing less than 0.05% Si, in the ladle and reduction with ferrosilicon and aluminum at the end of the process; IV. blowing through non-reduced metal in the ladle under vacuum, with addition of ferrosilicon and aluminum at the end of blowing. Ferrosilicon was added in an amount to ensure 0.27 - 0.28% Si content in the metal, the amount of aluminum added was 0.5 kg/ton. The technically pure argon gas contained 0.003 - 0.009% oxygen and maximum 0.01% nitrogen. The hydrogen content of the metal (both in reduced and non-reduced condition) could most efficiently be removed when argon gas was blown through at residual pressures of 10 - 12 mm mercury column in the vacuum chamber, with a blowing time of at least 8 min. A maximum reduction of the oxygen content can be obtained by blowing gas into the ladle through non-reduced metal under vacuum (IV). With regard to nonmetallic inclusions the best results are attained by versions III and IV. Some of the heats were entirely without spheroidal inclusions. The amount of oxygen and of impurities also depends on the degree of reduction of the slag, in view of the intensive mixing of metal and slag during blowing. The

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Blowing inert gases through the metal in

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lowest oxygen content (0.0019%) and the smallest number of oxide and spheroidal inclusions are ensured when argon is blown in amounts of 0.05 - 0.06 m³/ton, under vacuum, at remanent pressures of 18 - 30 mm Hg. The intense stirring of the metal caused by the argon gas blown into the ladle also causes a uniform distribution of silicon in the bottom part of the ladle and its complete adsorption. There are 3 figures. The English-language reference is: Iron and Steel Engineer, 1959, v. 36, no. 9 (September), 192.

Card 3/3

CHUYKO, N.M., doktor tekhn. nauk; ANTIPENKO, G.I., inzh.

Production of electric steel at the "Dneprospetsstal"
Plant. Met. i gorncrud. prom. no.4:18-19 JI-Ag '62. (MIRA 15:9)
(Zaporozhye--Steel--Electrometallurgy)

SVENCHANSKIY, A.D.; ARONOV, L.I.; SHEVTSOV, M.A.; HOLODOV, A.I.;
SUCHIL'NIKOV, S.I.; KHITRIK, S.I.; CHUYKO, N.M.; ZHERDEV, I.T.;
SISOYAN, G.A.; KOZLOV, V.S.; KULIKOVSKIY, L.F.; NOVIKOV, O.Ya.

Professor S.I. Tel'nyi. Elektrichestvo no.10:89 0 '60. (MIRA 14:9)
(Tel'nyi, Stepan Ivanovich, 1890-)

CHUYKO, N.M., doktor tekhn.nauk; PEREVYAZKO, A.T.; MOSHKEVICH, Ye.I.;
Prinimali uchastiye: RUTKOVSKIY, V.B.; KONISHCHEV, M.I.;
FRANTSEV, V.P.; DEMIDOV, P.V.

Controlling the gaseous phase composition in an electric furnace
by means of an air curtain. Met. i gornorud. prom. no.2:15-18
Mr-Ap '62. (MIRA 15:11)

1. Dnepropetrovskiy metallurgicheskiy institut (for Chuyko).
2. Dnepropetrovskiy staleplavil'nyy zavod vysokokachestvennykh
i spetsial'nykh staley (for Perevyasko, Moshkevich).
(Electric furnaces) (Gases--Analysis)

Z/056/63/020/003/001/005
E073/E135

AUTHORS: Chuyko, N.M., and Antipenko, G.I.

TITLE: Manufacture of electrical steel at the
"Dneprospetsstal" Works

PERIODICAL: Hutnictví a strojírenství. Přehled technické a
hospodářské literatury, v.20, no.3, 1963, 135,
abstract HS 63-1655. (Metallurg. i gornorud. Prom.,
no.4, 1962, 18-19)

TEXT: A 1.7 to 2-fold increase is planned in the manufacture of electrical steels during the Seven Year Plan period. The plant is preparing to cope with this task by designing new high-capacity electric furnaces, by installing special automation equipment for charging and dosing the lime into the furnace, by electromagnetic apparatus for mixing the melt, and by using demountable sheaths to facilitate and accelerate furnace repairs. In addition, laboratory work is proceeding on improving the quality of constructional and ball-bearing steels; the refining time of these steels was reduced to 25 - 35 min. The pig-iron content of
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Manufacture of electrical steel ...

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E073/E135

the charge was increased to 20 - 25%. By "reconstructing" the duplex process, a saving in electricity and increase in production were achieved. In addition, it is necessary: 1) to ensure the production of high purity oxygen; 2) to use argon under pressure for degassing steel; and 3) to introduce natural gas firing of furnaces.

[Abstracter's note: Complete translation.]

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CHUYKO, N.M., doktor tekhn. nauk; PEREVYAZKO, A.T., inzh.;
MOSHKEVICH, Ye.I., inzh.

Production of dense ingots of transformer steel. Met. i
gornorud. prom. no.6:14-15 N-D '62. (MIRA 17:8)

1. Dnepropetrovskiy metallurgicheskiy institut (for Chuyko,
Perevyazko). 2. Zavod "Dneprospetsstal'" (for Moshkevich).

CHUYKO, N.M., doktor tekhn.nauk; RUTKOVSKIY, V.B., inzh.; DANICHEK, R.Ye.,
inzh.; PEREVYAZKO, A.T., inzh.; BORODULIN, G.M., inzh.;
TREGUBENKO, A.F., inzh.; SHAMIL', Yu.P., inzh.; FRANTSOV, V.P.,
inzh.; VOLOVICH, V.G., inzh.; Primalni uchastiye: IOFFE, I.M.,
inzh.; LAVRENT'YEV, M.I., inzh.; PARKHOMENKO, G.P., inzh.;
DEMIDENKO, V.I., inzh.; RYSIN, Ye.M., inzh.; VOROB'YEVA, T.M., inzh.

Inert gas blowing of metal in the ladle in vacuum. Stal' 22
no.9:809-811 S '62. (MIRA 15:11)
(Vacuum metallurgy) (Protective atmospheres)

EDNERAL, Fedor Prokopyevich, prof., doktor tekhn. nauk; KHITRIK,
S.I., prof., doktor tekhn. nauk, retsenzent; ~~CHUYKO N.M.~~,
prof., doktor tekhn. nauk, retsenzent; KHOLODOV, A.I.,
dots., kand. tekhn. nauk, retsenzent; VENETSKIY, S.I.,
inzh., red.; KARASEV, A.I., tekhn. red.

[Electrometallurgy of steel and ferroalloys] Elektrometal-
lurgiya stali i ferrosplavov. Izd.3., ispr. i dop. Moskva,
Metallurgizdat, 1963. 640 p. (MIRA 16:8)

(Steel--Electrometallurgy)
(Iron alloys--Electrometallurgy)

L 18165-63

EWP(q)/EWT(m)/BDS AFFTC JD

ACCESSION NR: AP3004581

S/0130/63/000/008/0019/0022

AUTHORS: Chuyko, N. M.; Rutkovskiy, V. B.

54
53

TITLE: Vacuum treatment of steel in the ladle by inert gas purification

SOURCE: Metallurg, no. 8, 1963, 19-22.

TOPIC TAGS: vacuum treatment, inert gas purification, argon, degassing

ABSTRACT: In order to insure proper purification of steel, the Dnepropetrovskiy metallurgicheskii institut (Dnepropetrovsk Metallurgical Institute) in cooperation with the plant Dneprospeetsstal' constructed an installation permitting the passage of inert gases through the metal in the ladle under vacuum. The installation consisted of a 28 m³ vacuum chamber provided with a heavy steel blast connection to a perforated chamotte extension pipe. The pipe is inserted into the ladle within the chamber and conducts an inert gas which is bubbled through the smelt. A total of 33 commercial batches were processed four ways: 1) passing of argon at atmospheric pressure; 2) passing of argon through the reduced steel under vacuum; 3) the vacuum treatment of nonreduced steel subsequently reduced with ferrosilica; 4) passing of argon through nonreduced steel under vacuum. The best

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ACCESSION NR: AP3004581

results were obtained by the last method. The smelts treated by the first and second methods had a higher percentage of globular inclusions, those treated by the third and fourth ways were free of these. It is anticipated that a further reduction of the residual pressure in the chamber to 5 mm of mercury column from the present 18-35 mm would considerably enhance the degree of purification of the smelt. Orig. art. has: 1 diagram.

ASSOCIATION: Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)

SUBMITTED: 00

DATE ACQ: 27Aug63

ENCL: 00

SUB CODE: ML

NO REF SOV: 000

OTHER: 000

Card 2/2

NIKITIN, B.M.; CHUYKO, N.M.

Effect of slag composition on the pattern of a phase current
oscillogram and the voltage of a steel smelting arc furnace. Izv.
vys. ucheb. zav.; chern. met. 6 no.10:52-57 '63. (MIRA 16:12)

1. Dnepropetrovskiy metallurgicheskiy institut.

CHUYKO, N. M.; PEREVYAZKO, A. T.; MOSHKEVICH, Ye. I.; SMOLYAKOV, V. F.

Vacuum treatment of liquid steel in the ladle or while pouring.
Izv. vys. ucheb. zav.; chern. met. 7 no.6:62-67 '64. (MIRA 17:7)

1. Dnepropetrovskiy metallurgicheskiy institut i zavod
"Dneprospetsstal".

NIKITIN, B.M.; CHUYKO, N.M.

Role of the electric resistance of slag in electric arc,
steel-smelting furnaces. Izv. vys. ucheb. zav.; chern. met.
6 no.8:60-67 '63. (MIRA 16:11)

1. Dnepropetrovskiy metallurgicheskiy institut.

CHUYKO, N.M.; PEREVYAZKO, A.T.; DANICHEK, R.Ye.; MOSHKOVICH, Ye.I.

Effect of the chemical composition of the metal and its content in
nitrogen and oxygen on the electrical properties of E3 transformer
steel. Nauch. trudy DMI no.51:3-16 '63. (MIRA 17:10)

CHUYKO, N.M.; PEREVYAZKO, A.T.; GALITSKIY, Yu.P.

Gas removal from a stream of transformer steel during decantation
under vacuum. Nauch. trudy DMI no.51:17-29 '63.

(MIRA 17:10)

CHUYKO, N.M.; GALITSKIY, Yu.P.; RUTKOVSKIY, V.B.; SAMOYLENKO, E.D.; SENCHILOV, E.S.

Gases in acid electric steel. Nauch. trudy DMI no.51:64-76 '63.

(MIRA 17:10)

1. Dnepropetrovskiy metallurgicheskiy institut i Dneprodzerzhinskiy vagonostroitel'nyy zavod imeni gazety "Pravda".

GALITSKIY, Yu.P.; CHUYKO, N.M.; GASIK, M.I.; YEMLIN, B.I.; PEREVYAZKO, A.T.; BOGDANCHENKO, A.G.; MALIKOV, G.P.

Using a thermoelectric silicometer in the making of transformer steel. Stal' 23 no. 3:231-232 Mr '64. (MIRA 17:5)

1. Dnepropetrovskiy metallurgicheskiy institut i zavod "Dneprospetsstal'".

CHUYKO, N.M.; GRECHNYY, Ya.V.; GALITSKIY, Yu.P.; SHMYREV, I.P.; VOROB'YEV, G.M.

Annealing of transformer steel in high vacuum and at high
temperatures. Izv. vys. ucheb. zav.; chern. met. 7 no.10:
49-54 '64. (MIRA 17:11)

1. Dnepropetrovskiy metallurgicheskiy institut.

CHUYKO, N.M.; GALITSKIY, Yu.P.; PEREVYAZKO, L.T.

Effect of the content of nonmetallic inclusions and oxygen on
the electric engineering properties of cold rolled transformed
sheet. Stal' 24 no.10:918-921 O '64. (MIRA 17:12)

L 41556-65 EPA(m)-2/ENT(m)/EPF(n)-2/EMP(t)/EMP(b) Pt-7/Pu-4 JD/H/JG
 ACCESSION NR: AF5602268 S/0148/64/000/012/0048/0051 30

AUTHOR: Nikitin, B. M.; Chuyko, N. M. 28
 B

TITLE: Electrical characteristics of a steel melting arc furnace allowing for resistance in liquid slags

SOURCE: IVUZ. Chernaya metallurgiya, no. 12, 1964, 48-51

TOPIC TAGS: steel melting, arc furnace, liquid slag, electrical characteristic, electric resistivity

ABSTRACT: This is a continuation of the authors' works (Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgia, 1963, no. 8; no. 10) showing the effect of the electrical resistivity of various slags on the electrical characteristics of an electric arc steel melting furnace. In this work the electrical characteristics of a furnace were calculated taking into account slags of various compositions whose resistivity under similar conditions ranged from 2 to 526×10^{-4} ohm. Analysis of the electrical characteristics thus obtained showed that the higher the

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ACCESSION NR: AP5002268

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resistivity of the slag, the lower the value of the maximum arc power and of the current strength corresponding to this maximum. In lime slags and in fused spars the resistivity of the liquid slag was insignificant: the values of the maximum arc power and the effective power were close. But the resistivity of the acid slags had the controlling effect on the energy in the process. However, arc furnaces can be operated efficiently with slags of high resistivity. The temperature of the furnace lining is lower with the acid than with the lime slags. As the temperature of the inner wall surface decreased, the rate of heating the liquid metal and hence the power factor of the equipment increased. The power between the arc and the slag can be redistributed (and the power of the furnace transformer used more effectively due to decreased heat losses) by changing the current strength when using a given slag. Orig. art. has: 9 equations, 5 figures and 1 table.

ASSOCIATION: Dnepropetrovskiy metallurgicheskii institut (Dnepropetrovsk Metallurgical Institute)

SUBMITTED: 06Jan64
NR REF SOV: 012

ENCL: 00
OTHER: 000

SUB CODE: MM

Card 2/2 ML

GALITSKIY, Yu.P.; CHUYKO, N.M.; PEREVYAZKO, A.T.; MOSHKEVICH, Ye.I.;
YELINSON, G.L.

Changes in the nitrogen content of metal during smelting and
its effect on the properties of a transformer sheet. Stal'
25 no.3:257-261 Mr '65. (MIRA 18:4)

1. Dnepropetrovskiy metallurgicheskiy institut i zavod
"Dneprospetsstal".

CHUYKO, O. V.

"A study of the behavior of gramicidine "C" on the micro-flora during acute and chronic occurrence of suppurative otitis and mastoiditis," Collection 1, O. V. Chuyko and M. L. Kanevskaya. "A study of the dynamics of microflora of mastoidal sores without relation to methods of treatment," Collection 2, O. V. Chuyko and M. L. Kanevskaya. "Comparative evaluation of the results of the study of the dynamics of microflora in patients treated with gramicidine, pyocyanine and control groups," Trudy Ukr. in-ta epidemiologii i mikrobiologii im. Mechnikova, Vol. XIV, Issue 1, 1948, p. 171-207

SO: U_3850, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949)

KAZARNOVSKIY, L.S.; LOKHVITSKAYA, M.F.; LYSENKO, L.V.; PIVNENKO, G.P.;
SERGEYENKO, T.A.; SILA, V.I.; SOTNIKOVA, O.M.; CHUYKO, O.Y.

Comparison of methods for preparing and analyzing infusions [with
summary in English]. Apt.delo 8 no.1:64-71 Ja-F '59.

(MIRA 12:2)

1. Iz Khar'kovskogo farmatsevticheskogo instituta (dir. - dots.
Yu.G. Borisyuk) Ministerstva zdavookhraneniya USSR.

(EXTRACTS)

CHUYKO, O.V.; BORISYUK, Yu.G. [Borysiuk, Iu.H.]; PANKRATOVA, G.M.
[Pankratova, H.M.]

Effectiveness of the action of volatile oils and their separate components on various groups of microbes. Report no.2: Study of the antibacterial characteristics of some components of volatile oils in experiments on animals. Farmatsev. zhur. 15 no.6:42-44 '60. (MIRA 14:11)

1. Khar'kovskiy farmatsevticheskii institut, kafedry mikrobiologii i farmakognozii.

(LINALOOL)

(BACTERIA, EFFECT OF DRUGS ON)

(PNEUMONIA)

CHUYKO, O.V.; PIVNENKO, G.P. [Pivnenko, H.P.]; PERTSEV, I.M.;
CHAGOVETS, R.K. [Chahovets', R.K.]; GRIN', N.P. [Hrin', H.P.]

Studying aseptic methods for the preparation of drugs.
Farmatsev. zhur. 17 no.6:43-48 '62. (MIRA 17:6)

1. Kafedra mikrobiologii i tekhnologii lekarstv Khar'kovskogo
farmatsevticheskogo instituta.

PIVNIENKO, G.D.; CHUKHO, O.V.; PERTSEV, I.M.; CHAGOVETS, R.K.

Preparation of ophthalmic ointments. Apt. delo 13 no.2:59-63
Mr-Apr '64. (MIRA 17:12)

1. Khar'kovskiy farmatsevticheskii institut.

CHUYKO, O.V.; PIVRENKO, G.P. [Pivnenko, H.P.]; PERTSEV, I.M.; CHAGOVETS, R.K.
[Chahovets', R.K.]

Aseptic method of drug preparation in some pharmacies of the City
of Kharkov. Farmatsev. zhur. 19 no.6:34-37 '64. (MIRA 18:4)

1. Khar'kovskiy farmatsevticheskiy institut.

ROZHDОВ, V.A.; SAVVUSHKIN, Ye.S., kand.tekhn.nauk; CHUYKO, P.A.

Lateral stability of semitrailers. Avt.prom. 29 no.1:9-11
Ja '63. (MIRA 16:1)
(Truck trailers)

GHUYKO, P.I.

Appearance of a fissure in the cranial bones of a corpse as a
result of freezing. Sud-med.ekspert. 3 no.1:62 Ja-Mr '60.

(MIRA 13:5)

1. Sudebno-meditsinskiy ekspert goroda Zhdanova.
(COLD—PHYSIOLOGICAL EFFECT)

S/137/62/000/007/028/072
A052/A101

AUTHORS: Kovalevskiy, N. G., Chuyko, P. I., Arkhangel'skiy, A. M.,
Sadokov, G. M., Borodkin, A. I.

TITLE: Tests of cold drawing thin-wall stainless steel pipes on a short
mandrel

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1962, 34, abstract 7D201.
(In collection: "Proiz-vo trub". Khar'kov, Metallurgizdat, no. 6, 1962
90 - 93)

TEXT: The investigations have proved the possibility of cold drawing
thin-wall stainless steel pipes on a short mandrel with the coefficient of elon-
gation of 1.35 - 1.49. These results are secured by the application of oxalate
coating as a technological lubricant in combination with a double lubrication
(5% ordinary soap solution plus a fifty-fifty mixture of castor oil and talc) and
using a hard-alloy tool. ✓

N. Yudina

[Abstracter's note: Complete translation]

Card 1/1

CHEKMAREV, I.A., kand. tekhn. nauk; CHUYKO, P.I., inzh.; SOKUPENKO, V.P., inzh.;
ROKUTOV, V.P., inzh.; MAKEYEV, Yu.B., inzh.

Method of studying the properties of metalworking lubricants
during the hot rolling of pipe on a long mandrel. Proizv. trub
no.11:40-46 '63. (MIRA 17:11)

L 61034-65 EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) Pf-4 JD/HW
ACCESSION NR: AR5017427 UR/0137/65/000/006/D034/D034

SOURCE: Ref. zh. Metallurgiya, Abs. 6D223

AUTHOR: Chuyko, P. I.; Savin, G. A.; Kolesnikov, V. N.; Putyatina, Z. V.;
Isayev, I. N.

TITLE: Production of 40 x 2.0 and 40 x 1.5 mm tubes from stainless steel by cold drawing on a long mandrel

CITED SOURCE: Sb. Proiz-vo trub. Vyp. 14. M., Metallurgiya, 1964, 40-43

TOPIC TAGS: pipe, stainless steel, metal drawing, metal heat treatment, metal rolling, organic lubricant

TRANSLATION: Experiments confirm the production of thin wall stainless tubes from billets with a diameter greater than 40 mm, by drawing on a long mandrel with subsequent gaging by drawing without a mandrel, and indicate the possibility of producing such tubes without intermediate heat treatment by drawing on a long mandrel in conjunction with rolling on machines of the oblique mill type. The best industrial lubricant for drawing stainless steel tubes on a long mandrel is a combination of oxalate and soap coatings.

Card 1/2

L 61034-65

ACCESSION NR: AR5017427

SUB CODE: MM

ENCL: 00

0

Card 2/2 *ADP*

CHUYKO, P.I., snobromeditsinskiy ekspert (gorod Zhdanov)

Head injury inflicted by a homemade pistol barrel in firing a shot.
Sud.-med. ekspert 3 no.2:56 Ap-Je '40. (MIRA 18:6)

L 16094-66 EWT(d)/EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EWP(l) JD/HW/DJ

ACC NR: AT5022782

SOURCE CODE: UR/3164/64/000/014/0040/0043

AUTHOR: Chuyko, P. I. (Engr.); Savin, G. A. (Engr.); Kolesnikov, V. N. (Engr.); Putyatina, Z. V. (Engr.); Isayev, I. N. (Engr.)

ORG: none

TITLE: Production of size 40 x 2.0 and 40 x 1.5 mm pipes from stainless steel by cold drawing with a long mandrel

SOURCE: Dnepropetrovsk. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorsko-tekhnologicheskyy institut trubnoy promyshlennosti. Proizvodstvo trub, no. 14, 1964. Sbornik statey po teorii i praktike trubnogo proizvodstva (Collection of articles on the theory and practice of pipe production), 40-43

TOPIC TAGS: metal tube, cold working, metal drawing, stainless steel, lubrication

ABSTRACT: The experiments were conducted using a 30 t long-drawing tube-mill, equipped with a rolling mill with slanting rollers. Copper and oxalates were tested as lubricants for coating. Following the coppering and oxalating, the pipes were lubricated at temperatures of 50°C with a 6% solution of hard soap, and the outside surface was covered with castor oil and talc (proportion 8:2). The

Card 1/2

L 16094-66

ACC NR: AT5022782

44,5516 4
experiments confirmed the possibility of obtaining stainless steel thin-walled pipes by cold drawing with a long mandrel and with a subsequent calibration by drawing without a mandrel. They also showed the possibility of producing pipes without an intermediate heat treatment. Orig. art. has: 1 figure and 1 table.

SUB CODE: // 13 SUBM DATE: none/ ORIG REF: 003

Card 2/2 SYN

GONCHARENKO, M.S., kand. tekhn. nauk; CHUTKO, I.I., nom. TARASIMKO.
R.I., inzh.; KIPARISOVA, A.G., inzh.; KAPASIN, Ya.S., inzh.

Effect of certain factors on the process of exalating pipe.
Proizv. trub no.12:114-116 '64.

(MIRA 12:114)

SHINKARENKO, V.V.; CHUYKO, S.B.

We are in favor of cutting centers. Avtom. svar. 16 no.6:89-90
Je '63. (MIRA 16:7)

1. Odesskiy proyektno-konstruktorskiy tekhnologicheskii institut.
(Gas welding and cutting)

L 16204-63

JW/JWD/A

EPR/EPF(c)/EWT(m)/BDS

AFFTC

PS-4/Pr-4

RM/BW/WW/

ACCESSION NR: AP3006345

S/0258/63/003/003/0460/0467

AUTHOR: Margolin, A. D. (Moscow); Chekirda, L. F. (Moscow); Chuyko, S. V. (Moscow)

TITLE: The combustion stability of liquid explosives at constant pressure

SOURCE: Inzhenernyy zhurnal, v. 3, no. 3, 1963, 460-467

TOPIC TAGS: combustion stability, combustion instability, liquid explosive, propellant, stability analysis, liquid fuel, nitroglycol, instability mode, combustion

ABSTRACT: A comprehensive theoretical and experimental study of combustion stability is presented. An analysis is made of combustion in an infinite vessel based on L. D. Landau's general theory on the combustion stability of liquid explosives (K teorii medlennogo goreniya. Zh. eksperm. i teoret. fiziki, v. 14, no. 4, 1944), and the following formulas are derived for determining the dimensionless wave number of dangerous oscillations (x_n) (those which develop most rapidly) and the time required for their development (τ_n):

$$x_n = 4/3n^2; \text{ and } 1/\tau_n = 1.5 (gn^3/J_1)\sqrt{\rho_1\rho_2^*},$$

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L 16204-63

ACCESSION NR: AP3006345

$$n = (J/J_1) \sqrt{\frac{\rho_1}{\rho_2}}, \quad J = \rho_1 v_1 \quad (\text{the mass burning rate}),$$

and $J_1 = \rho_1 v_1^*$ (the critical mass burning rate). The region in which oscillations are amplified was defined by inequalities in terms of n and x . The values of τ_{nn} and x_n were calculated for nitroglycol and tabulated in the range of $n = 1 - 2$. A plot of x versus n is shown in Fig. 1 of the Enclosure. Experiments with nitroglycol were conducted in tubes (1.5-10mm diameter) and in rectangular vessels (2 x 10 mm). To secure uniform ignition along the entire surface, nitroglycol was ignited by a layer of steadily burning ethylnitrate placed over the nitroglycol and ignited by a nichrome wire. The time of development of unstable combustion of nitroglycol was less than 0.1 sec. The effects of the tube diameter and the shape of the vessel on combustion stability were also studied. Some of the results are shown in Fig. 2 and Fig. 3 of the Enclosure. Fig. 3 shows that in tubes of small diameter the largest possible perturbations will be the most dangerous while in tubes of large diameter the most dangerous will be perturbations having the highest values of i . Further analysis yielded criteria for the effect of

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L 16204-63

ACCESSION NR: AP3006345

gravitation on combustion stability. Stability at zero gravity is discussed. On the basis of photographs obtained by high-speed frame photography, it is shown that flame pulsations arise as a consequence of perturbations of the liquid surface. Both radial and tangential instability modes were distinguished. The wave length of the oscillations was evaluated as 2-8 mm, which lies within the range of dangerous oscillations predicted by theory. Measurements of flame pulsations indicated that their frequency increases somewhat with increasing pressure. Photographs of nitroglycol dyad with nigrosine showed helical traces and cellular patterns resembling those observed with spinning detonation waves. It may be assumed that the dimension of the surface perturbation during unstable combustion equals the dimension of the most dangerous oscillation predicted by stability analysis. Orig. art. has: 6 figures and 17 formulas.

ASSOCIATION: none

SUBMITTED: 16Oct63

DATE ACQ: 27Sep63

ENCL: 003

SUB CODE: AS, PR

NO REF SOV: 004

OTHER: 001

Card 3/6

BOBOLEV, V.K. (Moskva); KARPURHIN, I.A. (Moskva); CHUYKO, S.V. (Moskva)

Combustion of porous charges of explosives. Nauch.-tekhn. probl.
gor. i vzryva no.1:44-51 '65. (MIRA 18:9)

L 17448-63 EPA/EPR/EPF(c)/EWT(m)/BDS AFFTC/AFGC Paan-4/Pe-4/Pr-4

BW/RM/WW/JW/DE/JWD/H

ACCESSION NR: AP3006130

S/0207/63/000/004/0099/0101

AUTHOR: Bobolev, V. K. (Moscow); Chekirda, L. F. (Moscow); Chuyko, S. V. (Moscow) 82 78

TITLE: Transition to detonation during normal burning of porous explosives at slightly increasing pressure

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1963, 99-101

TOPIC TAGS: solid explosive, secondary explosive, combustion, deflagration-detonation transition, hexogen, solid-propellant detonation

ABSTRACT: Experiments have shown that the pores on the burning surface of melting secondary explosives are covered by the melt only at comparatively low pressures. When the pressure reaches a critical value (P_*), the surface of the melt is disrupted and intermediate gaseous combustion products from the dark zone penetrate into the pores, where they cause thermal decomposition of the explosive. After an induction period the intermediate products enriched by the thermal decomposition products undergo self-ignition followed by detonation.

Card 1/3

L 17448-63

ACCESSION NR: AP3006130

2

Flames inside the pores are not observed when the pore walls are coated with an inert material. Experiments with pressed hexogen of 160—250- μ particle size and 0.7 density were conducted in a manometric bomb equipped with high- and low-speed photoregisters and with piezoelectric pressure pickups for recording the pressure in the bomb and in the pores. The pressure P_* can be calculated by the formula

$$P_* \leq \frac{12\delta\chi(\rho - \rho_*)}{(1 - \delta)D\rho},$$

where ρ_* is the density of the melt, ρ is the density of the solid explosive, χ is the thickness of the molten layer at 1 atm, and D is the particle diameter; P_* was about 3 atm for the hexogen tested. A plot of detonation pressure (P) versus the pressure-increase rate obtained with hexogen specimens 40 mm high and 8 mm in diameter showed that the characteristic time constant, the time required for development of self-ignition, is about 0.7 sec. Four combustion regimes (normal, convective, explosive, and detonative) are defined by inequalities in terms of the rate of gas penetration into the pores and the

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L 17448-63

ACCESSION NR: AP3006130

2

flow velocity of the combustion products. "The authors thank I. A. Karpukhin and G. A. Afanas'yev for evaluating certain problems." Orig. art. has: 5 figures and 1 formula.

ASSOCIATION: none

SUBMITTED: 18Mar63

DATE ACQ: 11Sep63

ENCL: 00

SUB CODE: AS, FL

NO REF SOV: 002

OTHER: 003

Card 3/3

L 13880-66

EWI(m)/FBA/ETC(m)-6/T/ENP(f) WW/JWD/WE

ACC NR: AP6004427

SOURCE CODE: UR/0414/65/000/003/0027/0035

AUTHOR: Margolin, A. D. (Moscow); Chuyko, S. V. (Moscow)

ORG: none

TITLE: Conditions of ignition of pore walls in combustion of porous charges

SOURCE: Fizika goreniya i vzryva, no. 3, 1965, 27-35

TOPIC TAGS: combustion, solid propellant, combustion instability

ABSTRACT: Several investigators have previously concluded that instability is connected with the ignition of pore walls, but the conditions have not been analyzed. The ignition or pyrolysis of pore walls is considered to be a necessary but not a sufficient condition for combustion instability. For instability to occur, the front of the ignition or pyrolysis must move faster than the normal combustion front. Perturbation of the normal combustion regime can take place either by penetration of gases into the pores or by heating the gases contained in the pores. In the present study, the following cases were mathematically analyzed and ignition criteria were derived in terms of pore dimensions, gas and propellant temperatures, pressure, etc.: heating and ignition of pore walls by penetrating hot gases, ignition of pore wall caused by flame propagation into the gases contained in the pores, and heating of gases by adiabatic compression. The effects of imperfections in pore structure are also discussed. Orig. art. has: 22 formulas.

[PV]

Card 1/2

UDC: 536.46

L 13880-66

ACC NR: AP6004427

SUB CODE: 21/ SUBM DATE: 19Feb65/ ORIG REF: 010/ OTH REF: 001/ ATD PRESS: 0

4193

TS
Card 2/2

L 50522-65 EPA/EPA(s)-2/LWT(n)/EPF(c)/EPR/EWP(j)/EWA(c) Pc-4/Paa-4/Pr-4/Ps-4/
Pt-2 RPL WH/JW/JWD/RM

ACCESSION NR: AP5013760

UR/0020/65/162/002/0388/0391

AUTHOR: Bobolev, V. K.; Margolin, A. D.; Chuyko, S. V. // ✓

TITLE: Mechanism of the penetration of combustion products into pores of explosive charges

SOURCE: AN SSSR. Doklady, v. 162, no. 2, 1965, 388-391

TOPIC TAGS: explosive combustion product, pore penetration mechanism, forced penetration, spontaneous penetration, hexogen //

ABSTRACT: The following two mechanisms of the penetration of combustion products into the pores of an explosive charge are postulated and experimentally substantiated: 1) forced penetration, which depends on the outer pressure far from the burning surface and which is not connected with the combustion process itself, but with increasing outer pressure; and 2) spontaneous penetration, which is connected directly with the combustion process and occurs under the conditions of unsteady burning near the charge surface, which is attributed to surface and gas-flow nonuniformities. The forced penetration takes place when the velocity of the penetrating gas (v_g) with respect to the pores is higher than the linear burning velocity (u),

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L 50529-65

ACCESSION NR: AP5013760

$v_g - u > 0$. For the case when the gas pressure (P) over a pore increases with a velocity dP/dt ,

$$v_g = \frac{H_0 dP}{P dt T_0} T_g$$

where H_0 is the height of the pore, T_0 is temperature of the pore wall far from the inlet, and T_g is the temperature of the penetrating gas. Under decreasing pressures the combustion gases penetrate the pore by the spontaneous mechanism. The theory was verified by experiments with a model pore, a gap (40 mm long and about 0.1 mm wide) between a hexogen charge and a plexiglass plate. The charge was burned in a bomb under controlled nitrogen pressure. The pressure change was registered on an oscillograph, and the combustion process was registered by high-speed photography through the plexiglass plate. The combustion gases penetrated the pore when the initial pressure in the bomb exceeded about 25 atm. The penetration rate increased with pressure. A detailed analysis of the experimental data is given. Orig. art. has: 2 tables and 2 figures. [PS]

ASSOCIATION: Institut khimicheskoy fiziki Akademii nauk SSSR (Institute of Chemical Physics, Academy of Sciences, SSSR)

Card 2/3

BOBOLEV, V. K.; CHUYKO, S. V.

"The combustion of porous systems under slowly changing pressure conditions."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12
May 1964.

Inst of Chemical Physics, AS USSR.

L 21146-66 FSS-2/ENT(1)/ENP(m)/ENT(m)/EWA(d)/ENP(j)/EWA(h)/EWA(1)

ACC NR: AP6009055 WJ/JW/JE/RM

SOURCE CODE: UR/0207/66/000/001/0104/0106

AUTHOR: Margolin, A. D. (Moscow); Chuyko, S. V. (Moscow)

ORG: none

TITLE: Form of the surface of liquid explosives burning beyond a stability limit

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 1, 1966, 104-106

TOPIC TAGS: liquid explosive, combustion instability, combustion, explosive

ABSTRACT: Based on Landau's theory of the normal burning of liquid explosives (Landau L. S. K teorii medlennogo gorennya. Zh. eksperm. i teor. fiz., 1944, 14, No. 4), a theoretical study was made of the form of perturbations on the surface of burning ethylene nitrate in a cylindrical vessel and of the effect of the vessel diameter on the combustion stability. The form of surface perturbations was also studied experimentally by high-speed photography (2000 frames/sec). The pictures were taken through the liquid explosive from the end of the reaction vessel utilizing the self-illumination of the burning surface. The light refraction at the liquid explosive surface revealed its surface structure. Ethylene nitrate and diethylene dinitrate with critical burning instability pressures of 15 and 54 atm, respectively, were used in the experiments. The pictures were taken at pressures ranging from 14 to 60 atm. In addition to the perturbed surface and turbulent burning which was observed for both ethylene nitrate and diethylene dinitrate, a swirling motion

Card 1/2

L 21/46-66

ACC NR: AP6009055

of the flame was observed in the burning of diethylene dinitrate. The size of the large perturbations decreased and the surface was covered with small perturbations. The turbulent character of the combustion of liquid explosives was also confirmed by experiments with tetranitromethane-ethanol and tetranitromethane-butanol mixtures burned at 2-40 atm. The theoretical predictions are in good agreement with the experiment. Orig. art. has: 4 figures and 4 formulas. [PS]

SUB CODE: 19/ SUBM DATE: 23Dec63/ ORIG REF: 005/ ATD PRESS: 4221

Card

212 MGS

L 46782-66 EWT(1)/EWP(m)/EWT(m)/EWP(j)/T RM/WW/JW/JWD/GD

ACC NR: AT6032003

SOURCE CODE: UR/0000/66/000/000/0273/0278

AUTHOR: Bobolev, V. K.; Karpukhin, I. A.; Chuyko, S. V.

ORG: Institute of Chemical Physics, AN SSSR (Institut khimicheskoy fiziki AN SSSR)

TITLE: Perturbation of the normal combustion regime of porous explosive charges

SOURCE: Teplo- i massoperenos, t. 4: Teplo- i massoobmen pri khimicheskikh prevrashcheniyakh v tekhnologii (Heat and mass transfer, v. 4: Heat and mass transfer during chemical transformations). Minsk, Nauka i tekhnika, 1966, 273-278

TOPIC TAGS: combustion, solid propellant combustion, solid propellant, combustion instability, deflagration to detonation transition, DEFLAGRATION, DETONATION, EXPLOSIVE CHARGE

ABSTRACT: The development of combustion instability and the deflagration-to-detonation transition was studied in a constant volume bomb by pressure recording and high speed photography. The hexogen samples were compacted into plexiglass cases and ignited by an electric wire or a powder charge. The results showed that the deflagration-to-detonation transition under increasing pressure takes place according to the following order: normal combustion; perturbed combustion; ejection of particles into the flame zone, which is accompanied by interruption of luminosity; accelerated combustion of the ejected particles, which generates a pressure increase above the burning surface; and gas penetration into the pores, which leads, in case of a pure explosive, to a detonation and, in case of an explosive phlegmatized with

Card 1/2

L 46782-66

ACC NR: AT6032003

paraffin wax, to accelerated combustion of the charge. Phlegmatization of the charge decelerates the development of this process and eliminates the deflagration-to-detonation transition. A new type of deflagration-to-detonation transition was found which is caused by the self-ignition of semiproducts and gases in the pores of the charge. Orig. art. has: 5 figures. [PV]

SUB CODE: 21/ SUBM DATE: 25Apr66/ ORIG REF: 004/ OTH REF: 004/ ATD PRESS: 5090

Card 2/2 hs

CHUYKO, V.T.; SHPIKULA, V.M.

Coprecipitation of traces of bismuth with basic copper salts.
Zhur. neorg. khim. 8 no.6:1516-1519 Je '63. (MIRA 16:6)

1. Ternopol'skiy meditsinskiy institut.
(Bismuth) (Precipitation(Chemistry))
(Copper sulfate)

ACCESSION NR: AP3002932

S/0076/63/037/006/1304/1310

AUTHOR: Andreyev, K. K.; Chuyko, S. V.

TITLE: Study on the transition to detonation in the combustion of explosives.
I. Combustion of powdered explosives at elevated pressures

SOURCE: Zhurnal fizicheskoy khimii, v. 37, no. 6, 1963, 1304-1310

TOPIC TAGS: powdered explosives, PETN, RDX, tetryl, accelerated combustion, high pressures, grain size, density

ABSTRACT: PETN, RDX, and tetryl explosive charges were used to determine the effect of grain size and density on the increase of combustion rate obtainable at pressures up to 1000 atm. Crystalline explosives of eight different average particle sizes ranging from 5 to 730 μ were compacted into plexiglass tubes to densities of 0.28--1. The gas permeability of the specimens was determined and plotted against the density. The combustion rate was determined in a

Card 1/3

ACCESSION NR: AP3002932

constant-pressure bomb filled with nitrogen. The combustion process was studied with a photoregister. Burning-rate-versus-pressure curves showed that at low pressures the combustion rate of powdered low-density explosives is the same as that of cast explosives. At critical pressure, a transition from normal to accelerated combustion occurred. The critical transition pressure increased with increasing density and decreased with increasing particle size. In PETN, the transition takes place at lower pressures than in the faster-burning RDX. PETN (200- μ particle size and 1.117 g/cm³ in density) burned under 50 atm at the normal rate, but RDX under the same conditions burned ten times faster than the normal rate. The average burning rate under the accelerated regime was 10--100 times higher than the normal rate. The accelerated rate increased with increasing pressure and was a function of particle size and density. The transition from deflagration to detonation was not observed in the pressure range studied. The relative combustion stability of powdered explosives under elevated pressures depended primarily on the nitrogen gas concentration in the explosive. Accelerated combustion is discussed in terms of a mechanism involving the

Cord 2/3

ACCESSION NR: AP3002932

penetration of combustion products into the porous explosive. Orig. art. has:
6 figures.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical
Physics AN SSSR)

SUBMITTED: 09May63

DATE ACQ: 16Jul63

ENCL: 00

SUB CODE: 00

NO REF SOV: 004

OTHER: 000

Card 3/3

L 6522-66 EPA/EPA(s)-2/EWT(m)/EPF(c)/T/EWP(i)/EWA(c)/ETC(m) RPL WW/JW/
 ACC NR: AP5026025 JWD/WE/RM SOURCE CODE: UR/0405/65/000/001/0044/0051

AUTHOR: Bobolev, V. K. ⁴⁴⁵⁵ (Moscow); Karpukhin, I. A. ⁴⁴⁵ (Moscow); Chuyko, S. V. ⁴⁴⁵ (Moscow)

ORG: none

TITLE: Combustion of porous explosive charges

SOURCE: Nauchno-tekhnicheskiye problemy goreniya i vzryva, no. 1, 1965, 44-51 ²⁰

TOPIC TAGS: detonation deflagration transition, solid propellant ² explosion, combustion, combustion instability

ABSTRACT: Previous experiments have shown that the transition from deflagration to detonation in porous propellants is connected with an unbalanced formation and removal of gas from the pores. The transition from deflagration to detonation in hexogen ¹ charges of 50—360 μ particle size, with and without the addition of paraffin wax, has been studied by pressure recordings and high-speed photography. Normal combustion took place under constant pressure for about 3 sec, then the burning velocity increased, and gradual transition to a perturbed combustion regime occurred, characterized by luminosity pulsations. The lengths of the periods of low luminosity increased with increasing particle size. The following mechanism is proposed. Normal combustion takes place only when the hot gases penetrating into the pores do not heat the grain to the gasification temperature to a depth exceeding that of the thermal layer. If this depth is exceeded, transition takes place. Paraffin wax acts as a

Card 1/2

0701 1720

L 6522-66

ACC NR: AP5026025

thermal barrier in the penetration of combustion products into the pores, and thus
retards the transition from deflagration to detonation. Orig. art. has: 6 figures.

[PV]

SUB CODE: FP/ SUBM DATE: 01Nov64/ ORIG REF: 005/ OTH REF: 001/ ATD PRESS:

4139

nw

Card 2/2

AID P - 2845

Subject : USSR/Aeronautics

Card 1/1 Pub. 58 - 4/19

Author : Chuyko, V.

Title : A great sport celebration

Periodical : Kryl. rod., 9, 6, S 1955

Abstract : Report on the achievements of the first sport track and field event the so-called "Spartakiad". Names are mentioned.

Institution : DOSAAF, Tushino Aeroclub

Submitted : No date

CHUYKO, V.

CHUYKO, V.

Winners of province meets. Kryn. rod. 7 no.10:21 0 '56. (MIRA 11:2)
(Moscow Province--Gliders (Aeronautics)--Competitions)

SIVOKHIN, S.P.; CHUYKO, V.A., inzh.

Using sulfate soap for the manufacture of paraffin emulsions.
Bum.prom. 37 no.9:25-26 S '62. (MIRA 15:9)

1. Arkhangel'skiy kombinat. 2. Glavnyy tekhnolog Arkhangel'skogo
kombinata (for Sivokhin).
(Emulsions (Chemistry)) (Hardboard)

CHUYKOV, Vasilii Ivanovich, (1900-)

[One hundred and eighty days in combat; from the notes of
the commander of the 62d Army] 180 dni v ogne srazhenii; iz
zapisok komandarma 62-l. Moskva, DOSAAF, 1962. 166 p.

(MIRA 15:10)

(Stalingrad, Battle of, 1942-1943)
(World War, 1939-1945—Regimental histories)

CHUYKOV, V.I., marshal Sovetskogo Soyuz

Important primary tasks. Voen. znan. 42 no.1:6-7 Ja '66.
(MIRA 19:1)

CHUYKO, V.K.

KOGAN, G.M.; CHUYKO, V.K.

Coated paper for offset printing. Bum.prom.32 no.9:19-21 S '57.
(MIRA 10:12)

1. Koryukovskaya fabrika tekhnicheskikh bumag.
(Paper) (Offset printing)

CHUYKO, V.K.

CHUYKO, V.K., inzh.-tekhnolog.

New development in the production of a paper substitute for
"granitol". Bum prom. 32 no.12:23 D '57. (MIRA 11:1)

1. Koryukovskaya fabrika tekhnicheskikh bumag.
(Paper products)

CHUYKO, V.K., inzh.; FEDOTOVSKIY, B.A., inzh.

Wetting chalk overlay paper on the papermaking machine. Sum. prom.
33 no. 7:17-18 J1 '58. (MIRA 11:7)

1. Koryukovskaya fabrika tekhnicheskikh bumag.
(Paper)

CHUYKO, V.K., inzh.

Mechanization of the conveying of chemicals and of coloring suspensions. Bum. prom. 34 no.11:15-16 N '59.

(MIRA 13:3)

1. Koryukovskaya fabrika tekhnicheskikh bumag.
(Koryukovka--Paper industry--Equipment and supplies)

CHUYKO, V.K., inzh.-tekhnolog; KHMEL'NOVA, T.P., konstruktor

Mechanization of labor-consuming works. Bum.prom. 35 no.4:25-27 Ap
'60. (MIRA 13:10)

1. Koryukovskaya fabrika tekhnicheskikh bumag.
(Paper industry--Equipment and supplies)

CHUYKO, Valentina Kirillovna; NIKOLAYEV, N.N., red.; KHOT'KOVA, Ye.S.,
red.izd-va; VDOVINA, V.M., tekhn. red.

[Manufacture of paper for industrial use] Proizvodstvo tekhnicheskikh bumag. Moskva, Goslesbumizdat, 1961. 198 p.
(MIRA 15:1)

(Paper)

CHUYKO, V.K.

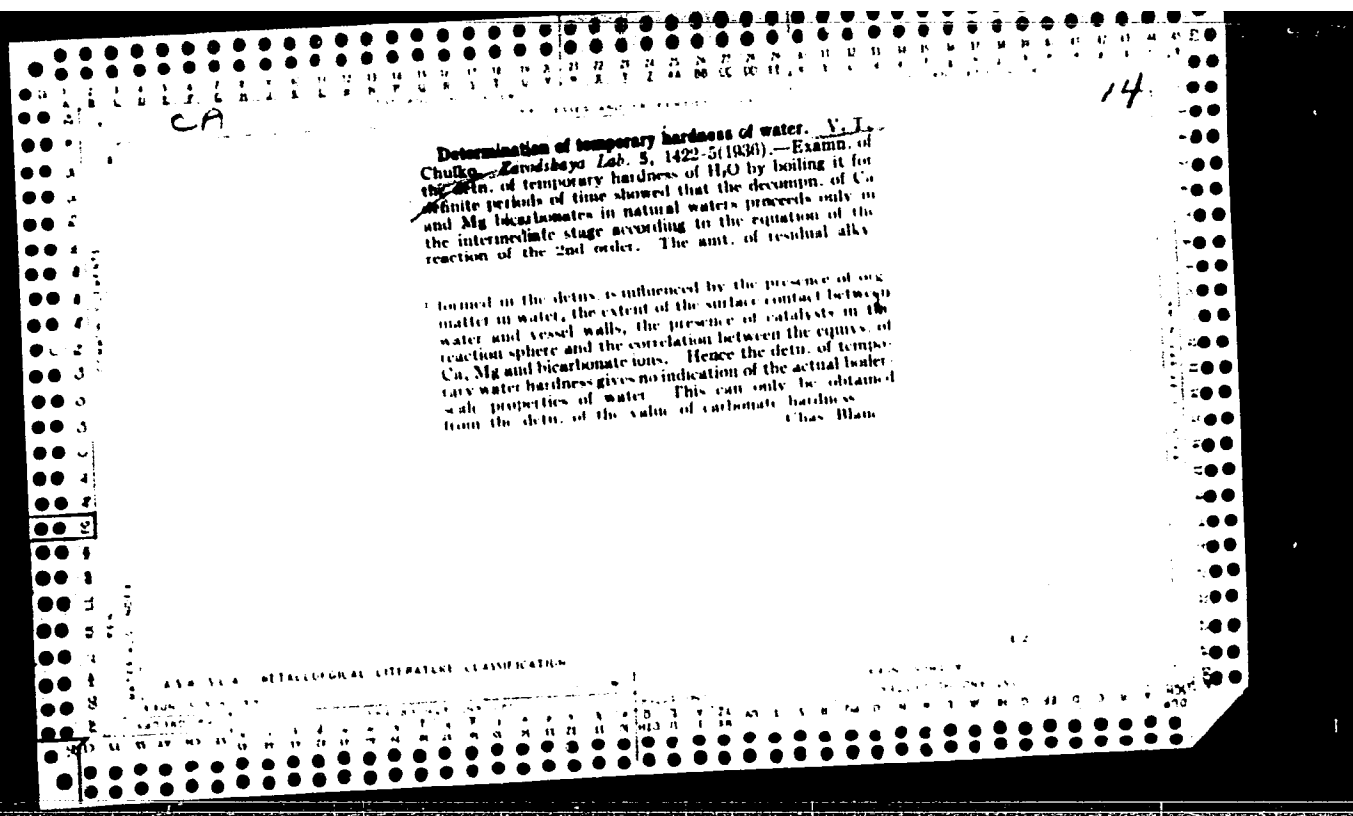
Use of synthetic latexes in the manufacture of paper oilcloth.
Bum.prom. 36 no.5:16 My '61. (MIRA.14:5)

1. Koryukovskaya fabrika tekhnicheskikh bumag.
(Koryukovka--Paper products)

CHUYKO, V.K., inzhener-khimik

Polyethylene coating of paper. Bum. prom. [38] no.6:20-22
Je '63, (MIRA 16:7)

1. Koryukovskaya fabrika tekhnicheskikh bumag.
(Paper coatings) (Polyethylene)



PROCESSING AND PROPERTY INDEX																									
TEST AND /OR OTHER													TEST AND /OR OTHER												
<p>Separation of traces of copper from natural water. V. T. Chulko. <i>J. Applied Chem.</i> (U. S. S. R.) 9, 1898- 1900 (in German 1900) (1938).—The Cu ion is com- pletely removed from water with $Al(OH)_3$ and $Fe(OH)_3$. A quant. method for the Cu detn. is as follows: one l. of water under investigation is treated with a soln. of $Al_2(SO_4)_3$ (300 g.) to complete pptn. The ppt. is dissolved in 4 cc. of 20% H_2SO_4, which, after the addn. of 10 cc. of 20% NH_4Cl with 2% $AcOH$ and 5 cc. of H_2S-water, is dild. to 100 cc. A standard soln. is prepd. from a $CuSO_4 \cdot$ $5H_2O$ soln. treated in the same manner as the unknown, and the solns. are compared colorimetrically. Five refer- ences. A. A. P.</p>																									
<p>ASB-514 METALLURGICAL LITERATURE CLASSIFICATION</p>																									

Determination of magnesium in the presence of an excess of ammonium oxalate. V. T. Chulko. *J. Applied Chem.* (U. S. S. R.) 10, 364-6 (in French 366) (1937).
Detn. of Mg as $MgNH_4PO_4$ in the presence of a large excess of $(NH_4)_2C_2O_4$; yields low results. A. A. P.

Causes for the blackening of sand in American rapid filters. V. T. Chailin. *Federnatsionnoe i Sanktsk. 1938, No. 1, 73-4; Abstr. Reford. Zhur. 1, No. 11-12, 121-2 (1938).*—The investigation of the blackening of sand in American rapid filters showed that it is caused not by biol. factors (Fe bacteria), but by physicochem. factors: the pptn. in the sand of inorg. substances, of SiO_2 , of the hydroxides of Al and of Fe, and of the oxides of Mn which are present in the colloidal state in the filter water. The black color of the film is caused by the presence of MnO_2 and of Fe(OH)_3 . W. R. Henn

ASB-YEA METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
<p>DETERMINATION OF TRACES OF MANGANESE IN NATURAL WATERS. V. T. Chulkin. <i>J. Applied Chem.</i> (U. S. S. R.) 11, 630-3 (in French 633) (1938).--Alkalize the sample to pH 9 and add $MgSO_4$. After complete pptn. of $Mg(OH)_2$, decant the clear liquid and dissolve the ppt. in H_2SO_4 (1 cc. of 1:3 acid per 10 mg. of ppt.). Det. Mn by the Marshall method (colorimetrically). Mn suspended in water can be sepd. from Mn dissolved by coagulation with $K_2Al_2(SO_4)_4 \cdot 24H_2O$ at pH 7.6-8.4. Seven references. A. A. Podgorny</p>																																																																																																			
<p>DETERMINATION OF TRACES OF MANGANESE IN NATURAL WATERS. V. T. Chulkin. <i>J. Applied Chem.</i> (U. S. S. R.) 11, 630-3 (in French 633) (1938).--Alkalize the sample to pH 9 and add $MgSO_4$. After complete pptn. of $Mg(OH)_2$, decant the clear liquid and dissolve the ppt. in H_2SO_4 (1 cc. of 1:3 acid per 10 mg. of ppt.). Det. Mn by the Marshall method (colorimetrically). Mn suspended in water can be sepd. from Mn dissolved by coagulation with $K_2Al_2(SO_4)_4 \cdot 24H_2O$ at pH 7.6-8.4. Seven references. A. A. Podgorny</p>																																																																																																			

The titanium content of the animal organism. V. T. Chukha and A. O. Volnar. *Biochem. J.* (Ukraine) 14, 591-7 (in Russian, 197 9; in English, 199 2011 (1989)).
 The method of Lehner and Crawford (C. A. 7, 951) was adopted and modified by boiling the tissue with H_2SO_4 and HNO_3 . This procedure hinders the reaction of various metallic ions with the thymol reagents used in the method. The final detn. is colorimetric. All tissues examd. contained Ti in concns. ranging from 0.001 to 2.0 mg. per 100 g. of wet wt. The lungs, hair, liver and kidneys have the highest concns. of Ti.

R. Levine

117 AND 118 SERIES										119 AND 120 SERIES									
PROCEDURES AND PROPERTIES INDEX																			
<p><i>Gluing action. Adhesive action. P. H. RATHMANN. Uspekhi Khim. 20, 78-88(1941).—The work of Stern, Bachheid, Neumann, Geringer, Bages, Taheri and Mc-Bain is discussed. Four tables and nine figures illustrate the relations among adhesive force, layer thickness, porosity, at. vol., strength, elastic limit, hardness, viscosity, Young's modulus, etc., for various metals, woods, and inorg. and org. substances.</i></p> <p style="text-align: right;">P. H. Rathmann</p>																			
<p>ASM-A6.4 METALLURGICAL LITERATURE CLASSIFICATION</p>																			
FROM STUDIES										FROM SUMMARY									
<p>100000 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000</p>										<p>1000 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000</p>									

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
PROCESSES AND PROPERTIES INDEX																			
CA										14									
<p>Selection of a method for colorimetric determination of nitrate in drinking and technical waters. V. T. Chufko, Zvezdshaya Lab. 12, 171-3 (1945). A no. of methods for colorimetric detn. of nitrates in drinking and tech. waters are discussed. The sulfophenol method is not recommended, owing to a no. of preliminary preps. required. Best results were obtained by the Noll method, which is rapid and accurate (cf. C.I. 39, 1941). Eleven references. W. R. Henn</p>																			
ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION																			
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20										21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40									

7

Concentration methods in the determination of traces of nickel. 1. V. T. Chulko. *Zhur. Anal. Khim.* 2, 328-33 (1947).—To det. very small quantities of Ni, ppt. first with $Mg(OH)_2$ by adding a little $MgSO_4$ and ppt. with $Na(OH)$. Add filter paper pulp, shake, and filter. Dissolve the washed ppt. in a little hot 10% HCl , neutralize carefully and add 0.5 ml. of 0.1 N I in KI soln. Add a satd. soln. of $Na_2P_2O_7$ and dimethylglyoxime until the ppt. that forms dissolves. After 5-15 min. compare in a colorimeter with standards treated similarly and contg. known amts. of Ni. To det. traces of Ni in solns. contg. Al^{3+} and Zn^{2+} , add 40% $NaOH$ until the hydroxides of Zn or Al just dissolve, shake with macerated ashless filter paper and filter. Treat with acid and continue as above. Neither of these procedures succeeds when traces of Ni are present in a soln. contg. Cr^{3+} . To the neutral soln, add a little HCl and heat to 40°. To each 50-70 ml. of soln, add 2 ml. of 0.5 M $K_4Fe(CN)_6$ and introduce dropwise 10 ml. of 0.5 M $ZnSO_4$ soln. Filter and wash until all Cr or Fe is removed. Treat the ppt. with 2 N $NaOH$ until the ppt. dissolves. Treat the soln. as above. In solns. contg. Fe^{3+} proceed similarly but in this case the $Fe(OH)_3$ will not dissolve in $NaOH$ soln. To conc. Ni from solns. contg. Co , add KCN in slight excess and treat with liq. water to form $Ni(OH)_2$ and $K_2CO_3(CN)_2$. Add filter paper pulp, filter off the $Ni(OH)_2$, dissolve it in hot 20% HCl and treat as above. M. Hensch

CA

Concentration methods in determining traces of nickel.
 II. Determination of nickel in manganese salts and ores.
 V. T. Chul'ko (Don Ind. Inst., Stalino, Ukraine). *Zhur.*
Anal. Khim. 4, 164-8 (1949); cf. C.A. 43, 7371b.—The
 procedure is based upon the addn. of Mn^{++} to the soln.
 of the sample and then treating at the boiling temp. with
 Na_2S soln. The resulting MnS ppt. will carry down with
 it all of the Ni. This sulfide ppt. can be dissolved in HCl
 + H_2O_2 and the resulting soln. treated with dimethylgly-
 oxime after adding hydrazine sulfate to remove Br , making
 slightly ammoniacal and adding some sol. tartrate. The
 Ni ppt. can be extd. with $CHCl_3$, the Ni changed to water
 sol. Ni^{++} by treating with HCl and the Ni detd. by the
 method of Dymov and Volodina (C.A. 41, 1171i).
 M. Hoesch